WHAT IS CLAIMED IS:

1. A magnetic detecting element comprising:

a multilayer laminate including a first antiferromagnetic layer, a pinned magnetic layer, a nonmagnetic material layer, and a first free magnetic layer in that order from the bottom thereof;

a second antiferromagnetic layer disposed in the track width direction at each side of the multilayer laminate in the track width direction; and

a second free magnetic layer from the upper surface of the second antiferromagnetic layer to the upper surface of the first free magnetic layer.

2. A magnetic detecting element according to Claim 1, further comprising a nonmagnetic layer between the first free magnetic layer and the second free magnetic layer.

3. A magnetic detecting element according to Claim 2, wherein the nonmagnetic layer comprises at least one element selected from the group consisting of Cu, Ru, Re, Pd, Os, Ir, Pt, Au, Rh, and Cr.

4. A magnetic detecting element according to Claim 1, further comprising a ferromagnetic layer between the second antiferromagnetic layer and the second free magnetic layer.

5. A magnetic detecting element according to Claim 4,

further comprising a nonmagnetic layer between the ferromagnetic layer and the second free magnetic layer.

6. A magnetic detecting element according to Claim 1, further comprising a specular layer on the upper surface of the second free magnetic layer in at least the region opposing the multilayer laminate in the thickness direction.

7. A magnetic detecting element according to Claim 6, wherein the specular layer comprises: an oxide selected from the group consisting of Fe-O, Ni-O, Co-O, Co-Fe-O, Co-Fe-Ni-O, Al-O, Al-Q-O, and R-O; a nitride selected from the group consisting of Al-N, Al-Q'-N and R'-N; or a semimetallic whistler alloy, wherein Q is at least one selected from the group consisting of B, Si, N, Ti, V, Cr, Mn, Fe, Co, and Ni, R is at least one selected from the group consisting of Cu, Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W, Q' is at least one selected from the group consisting of B, Si, O, Ti, V, Cr, Mn, Fe, Co, and Ni, and R' is at least one selected from the group consisting of Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W.

8. A magnetic detecting element according to Claim 1, further comprising a specular layer between the first free magnetic layer and the second free magnetic layer.

9. A magnetic detecting element according to Claim 1, further comprising a backed layer on the upper surface of the second free magnetic layer in at least the region opposing

the multilayer laminate in the thickness direction.

10. A magnetic detecting element according to Claim 9, wherein the backed layer comprises an element selected from the group consisting of Cu, Au, Cr, and Ru.

11. A magnetic detecting element according to Claim 1, further comprising a third antiferromagnetic layer above the second free magnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

12. A magnetic detecting element according to Claim 11, further comprising a ferromagnetic layer between the third antiferromagnetic layer and the second free magnetic layer.

13. A magnetic detecting element according to Claim 11, further comprising a fourth antiferromagnetic layer between the third antiferromagnetic layer and the second free magnetic layer.

14. A magnetic detecting element according to Claim 11, further comprising a nonmagnetic layer in a space dividing the antiferromagnetic layer in the track width direction, above the second free magnetic layer.

15. A magnetic detecting element according to Claim 1, wherein the angle $\theta 1$ between the lower surface of the multilayer laminate and each side surface of the multilayer

laminate is in the range of 60° to 90°.

16. A magnetic detecting element according to Claim 1, further comprising an electrode layer above the second free magnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

17. A magnetic detecting element according to Claim 1, further comprising: an upper electrode above the multilayer laminate; and a lower electrode under the multilayer laminate.

18. A magnetic detecting element according to Claim 17, further comprising an insulating layer between the lower electrode layer and the second antiferromagnetic layer and between the second antiferromagnetic layer and each end surface of the multilayer laminate.

19. A magnetic detecting element according to Claim 17, further comprising an insulating layer between the upper electrode layer and the second free magnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

20. A magnetic detecting element according to Claim 11, further comprising an insulating layer between the upper electrode layer and the third antiferromagnetic layer.

21. A method for manufacturing a magnetic detecting

element, comprising the steps:

(a) forming a multilayer laminate including a first antiferromagnetic layer, a pinned magnetic layer, a nonmagnetic material layer, and a first free magnetic layer in that order from the bottom thereof;

(b) removing both sides of the multilayer laminate in the track width direction and providing a second antiferromagnetic layer on the end surfaces in the track width direction; and

(c) providing a second free magnetic layer from the upper surface of the second antiferromagnetic layer to the upper surface of the first free magnetic layer.

22. A method for manufacturing a magnetic detecting element according to Claim 21, wherein step (a) includes the sub step of forming a nonmagnetic layer on the uppermost layer of the multilayer laminate, step (b) includes the sub step of forming a nonmagnetic layer on the second antiferromagnetic layer, and step (c) includes the sub step of removing part or the entirety of the nonmagnetic layers before forming the second free magnetic layer.

23. A method for manufacturing a magnetic detecting element according to Claim 22, wherein step (a) includes the sub step of oxidizing the nonmagnetic layer on the first free magnetic layer to a specular layer that will be left between the first free magnetic layer and the second free magnetic layer.

24. A method for manufacturing a magnetic detecting element according to Claim 22, where in the nonmagnetic layers are formed of at least one selected from the group consisting of Cu, Ru, Re, Pd, Os, Ir, Pt, Au, Rh, and Cr.

25. A method for manufacturing a magnetic detecting element according to Claim 24, wherein the initial thickness of the nonmagnetic layer is in the range of 3 to 20 Å.

26. A method for manufacturing a magnetic detecting element according to Claim 21, wherein step (a) includes the sub step forming a nonmagnetic layer on the uppermost layer of the multilayer laminate, step (b) includes the sub step of forming a ferromagnetic layer and a nonmagnetic layer on the second antiferromagnetic layer, and step (c) includes the sub step of partly or entirely removing the nonmagnetic layers before forming the second free magnetic layer.

27. A method for manufacturing a magnetic detecting element according to Claim 21, wherein step (c) includes the sub step of forming a specular layer on the second free magnetic layer.

28. A method for manufacturing a magnetic detecting element according to Claim 27, wherein the specular layer is formed of: an oxide selected from the group consisting of Fe-O, Ni-O, Co-O, Co-Fe-O, Co-Fe-Ni-O, Al-O, Al-Q-O, and R-O; a

nitride selected from the group consisting of Al-N, Al-Q'-N and R'-N; or a semimetallic whistler alloy, wherein Q is at least one selected from the group consisting of B, Si, N, Ti, V, Cr, Mn, Fe, Co, and Ni, R is at least one selected from the group consisting of Cu, Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W, Q' is at least one selected from the group consisting of B, Si, O, Ti, V, Cr, Mn, Fe, Co, and Ni, and R' is at least one selected from the group consisting of Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, and W.

29. A method for manufacturing a magnetic detecting element according to any one of Claims 21, wherein step (c) includes the sub step of forming a backed layer on the second free magnetic layer.

30. A method for manufacturing a magnetic detecting element according to Claim 29, wherein the backed layer is formed of an element selected from the group consisting of Cu, Au, Cr and Ru.

31. A method for manufacturing a magnetic detecting element according to any one of Claims 21, wherein step (c) includes the sub step of forming a third antiferromagnetic layer above the second free magnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

32. A method for manufacturing a magnetic detecting

element according to Claim 31, wherein step (c) further includes the sub steps of: forming a nonmagnetic layer above the second free magnetic layer; and removing the nonmagnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction, before the sub step of forming the third antiferromagnetic layer.

33. A method for manufacturing a magnetic detecting element according to Claim 32, wherein step (c) further includes the sub step of: forming a ferromagnetic layer in the region from which the nonmagnetic layer has been removed, the sub step being performed before the sub step of forming the third antiferromagnetic layer, and wherein the third antiferromagnetic layer is disposed on the ferromagnetic layer.

34. A method for manufacturing a magnetic detecting element according to Claim 31, wherein step (c) further includes the sub step of forming a fourth antiferromagnetic layer on the second free magnetic layer, before the sub step of forming the third antiferromagnetic layer, and wherein the third antiferromagnetic layer is disposed above the fourth antiferromagnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

35. A method for manufacturing a magnetic detecting element according to any one of Claims 21 to 34, wherein step (c) further includes the sub step of forming an electrode

layer above the second free magnetic layer in the region opposing the second antiferromagnetic layer in the thickness direction.

36. A method for manufacturing a magnetic detecting element according to Claim 21, further comprising the step of forming an upper electrode layer above the multilayer laminate after step (c), wherein step (a) includes the sub step of forming a lower electrode layer so as to extend in the track width direction beyond the width of the multilayer laminate, before forming the multilayer laminate.

37. A method for manufacturing a magnetic detecting element according to Claim 36, wherein step (c) further includes the sub step of forming an insulating layer from the upper surface of the lower electrode layer to each side surface of the multilayer laminate, before forming the second antiferromagnetic layer.

38. A method for manufacturing a magnetic detecting element according to Claim 36, wherein step (c) further includes the sub step of forming an insulating layer above the region of the second free magnetic layer opposing the second antiferromagnetic layer in the thickness direction, after forming the second free magnetic layer, wherein the upper electrode layer is disposed from the upper surface of the insulating layer to the region above the multilayer.

39. A method for manufacturing a magnetic detecting element according to Claim 11, wherein step (c) further includes the sub step of forming an insulating layer on the third antiferromagnetic layer wherein the upper electrode layer is disposed from the upper surface of insulating layer to the region above the multilayer laminate.